

IN THE SPECIFICATION:

Please amend the specification as follows, particularly, throughout the specification, vibration proof mount device has been amended to recite “vibration isolating mount device”.

Line 1, page 1, Title

VIBRATION ~~PROOF~~ ISOLATING MOUNT DEVICE

Page 1, 1st full paragraph

The present invention relates to a vibration ~~proof~~ isolating mount device for mounting a power plant on an automobile, and particularly, belongs to the technical field of a structure thereof in a case where a mechanism for limiting oscillation in a rolling direction of the power plant is installed integrally in a single body.

Page 4, 1st full paragraph on page.

That is, in the stopper mechanisms of Patent literatures 3 and 4, as described above, since elastic deformation of compressed rubber is greatly limited not only in the vehicle body longitudinal direction but also in the vertical direction in a state where the stopper rubber portion is in contact with a member of the vehicle body to receive a pushing force in the vehicle body longitudinal direction, the member of the vehicle body is restricted in motion thereof by the rubber stopper portion relative to the member of the power plant. For this reason, dynamic spring constants of the mount in the entirety in the longitudinal direction and vertical direction of the vehicle body increase suddenly at the same time as the action of the stopper, thereby degrading vibration ~~proof~~ isolating performance (see the solid lines shown in the graphs of Figs. 7A and 7B).

Page 4, 2nd full paragraph on page.

In acceleration of an automobile, for example, a power plant in the entirety, in some case, has great vibrations in the vertical direction because of unbalance in reciprocating

inertia force or the like of the engine, when the power plant is inclined by a driving reaction force to thereby cause a stopper to act and to degrade vibration ~~proof~~ isolating performance of mounts suddenly, which leads to an inconvenience that vibrations in the vertical direction accompanying the acceleration operation propagates into the vehicle compartment to generate a loud surrounding sound confined therein.

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Even if stiffness of the stopper rubber portion is partly reduced to cope with such an inconvenience to thereby cause rubber to be elastically deformed with comparative ease at the initial stage in the action of a stopper, as shown in Patent literature 5 and 6 described above (see the broken line in the graph of Fig. 7A), such a feature works only so as to slow down degradation of vibration ~~proof~~ isolating performance of a mount in company with action of the stopper, and does not work such that increase in dynamic spring constant in the vertical direction of the mount as a whole is suppressed to thereby enable vibrations in the vertical direction to be sufficiently absorbed while a load in the vehicle body longitudinal direction is received with certainty, as a torque rod works.

Page 5, after Summary of the Invention, 1st full paragraph on page.

The present invention has been made in light of such problematic points and it is an object of the present invention to provide a vibration ~~proof~~ isolating mount device for an engine (or a power plant) in a traverse mount fashion in a so-called FF automobile or the like in which an oscillation limiting mechanism provided therein integrally provided in a single piece is deliberately contrived in construction so as to achieve a function similar to that of a torque rod while a simple structure thereof less of cost up is realized.

Page 5, last paragraph on page.

To be more concrete, a first invention of the present application is directed to a vibration ~~proof~~ isolating mount device not only for elastically supporting one of left and right end portions of a power plant mounted on a vehicle with the length direction of the power plant aligned in the traverse direction of the body of the vehicle, but also having an oscillation limiting mechanism for limiting oscillation of the power plant in a roll direction thereof. The oscillation limiting mechanism has a receiving member for a force in the vehicle body longitudinal direction receiving at least a compressive force in the vehicle body longitudinal direction between a member of the vehicle body and a member of the power plant facing each other in the vehicle body longitudinal direction, and the receiving member for a force in the vehicle body longitudinal direction (hereinafter ~~referred~~ referred to simply as the receiving member) is constructed of: a rubber portion and a core body made of a material higher in stiffness than the rubber portion and provided integrally with the rubber portion in a single piece at least so as to be revolvable around an axis in the vehicle body traverse direction by a predetermined angle or more.

Page 6, last paragraph on page continuing to top of page 7

That is, according to an oscillation limiting mechanism of the invention of the present application, even with a simple structure similar to that of a conventional general stopper mechanism, a function similar to that of a torque rod is achieved by a link action of a core body provided integrally with a rubber portion, which is different in function from the conventional general mechanism, thereby enabling absorption performance of vibrations in the vertical direction in a vibration ~~proof~~ isolating mount to be sufficiently maintained while oscillation of the power plant is limited effectively.

Page 7, 1st full paragraph on page.

Note that to provide the core body in the receiving member so as to be revolvable by a predetermined angle or more is to construct a structure in which the core body is intentionally revolved, which is different from a structure in which a core metal or the like is embedded in a conventional known stopper rubber for reinforcement. Therefore, ~~in the invention related to Claim 1,~~ the core body in the receiving member can usually revolve relatively to at least one of a member of a vehicle body and a member of a power plant by a predetermined angle (for example about 1 degree) or more, for example when the receiving member receives a force in the vertical direction without the action of a force in the vehicle body longitudinal direction.

Page 10, 1st full paragraph

An example is presented here as a preferable concrete structure of a vibration ~~proof~~ isolating mount device related to one of the second to ninth inventions, in which a member of the vehicle body in the shape of an inverted U letter is disposed so as to cross over the body of the mount on which a static load of the power plant is imposed to fix the lower ends of leg portions of a pair located before and after the member of the vehicle body to a side frame of the vehicle body at positions before and after, respectively, the body of the mount. The receiving member is disposed at at least one of the front and rear sites of an outer wall portion of the body of the mount, which is the member of the power plant, so as to protrude toward a leg portion of the member of the body of the vehicle which the receiving member faces in the vehicle body longitudinal direction (a tenth invention).

Page 12, last paragraph on page continuing to top of page 13.

As described above, according to a vibration ~~proof~~ isolating mount device related to the invention of the present application, in a case where an oscillation limiting device is provided instead of a torque rod as functional replacement in the vibration ~~proof~~ isolating

mount of a power plant mounted in a traverse mount fashion in an engine room of an automobile, a basic structure of a conventional known stopper mechanism is employed: for example with a core body in a receiving member for a force in the vehicle body longitudinal direction such as a stopper rubber so as to revolve around an axis in the vehicle traverse direction as if it were a link provided, the receiving member for a force in the vehicle body longitudinal direction is shear-deformed in the vertically direction with comparative ease when the receiving member receives a compressive force in the vehicle body longitudinal direction; therefore, not only can a load in the vehicle body longitudinal direction be received and absorbed with certainty as a torque rod does, though with a simple structure less in cost up, but also no dynamic spring constant suddenly increase in the vertical direction and the surrounding sound due to acceleration of automobile can be sufficiently suppressed.

Page 15, 1st full paragraph on page after Embodiment 1

Figs. 1 and 2 show a schematic construction of an engine mount system using a vibration ~~proof~~ isolating mount device related to the embodiment 1 of the present invention. In both figures, a mark P is a power plant constructed by coupling in series an engine 1 and a transmission 2 to each other. The power plant P is mounted in an engine room of an automobile not shown in a traverse mount fashion so that the length direction thereof (a direction in which a crankshaft of the engine 1 extends) takes a vehicle width direction (a vehicle body traverse direction) and elastically supported by vehicle body side frames 6 and 7 at two sites thereof through mounts 3 and 5 disposed at both end portions in the length direction, that is at end portions on the side of the engine 1 thereof and the side of the transmission 2 thereof. The lower end portion of the power plant P is connected to a vehicle body side member 9 (a subframe or the like) in the rear side of the vehicle body by a torque rod 8 independent of the mounts 3 and 5.

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Fig. 1 shows an outer appearance only of the body of the power plant as viewed obliquely from the upper right position at the rear side of the vehicle body omitting all of an intake-exhaust system, auxiliary equipment thereof and the others of the engine 1 and the body of the engine 1 roughly includes: a cylinder block 10 and a cylinder head 11 arranged thereon and in addition, is provided with a belt cover 12 at an end portion in the length direction opposite the transmission 2 (the right end portion of the vehicle body shown in Fig. 1 at the front thereof) and further not only a head cover 13 on the top of the cylinder head 11 but also an oil pan (not shown) in the lower portion of the cylinder block 10. The lower end side of an engine side mount bracket 15 is fastened to the right side wall of the cylinder head 11 passing through the belt cover 12 and a flange plate 31b extending from the mount 3 side is fastened, in a state of being superimposed from above, onto the upper end portion of the mount bracket 15 extending upward from the lower end thereof. The engine side mount 3 is a vibration ~~proof~~ isolating mount device of the present invention and description will be given of details of the construction later.

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With the construction adopted, according to the vibration ~~proof~~ isolating mount device (the engine side mount 3) related to the embodiment 1, for example, when an automobile is at rest and the engine 1 is in an idling state, idling vibrations of low frequencies caused by a change in torque or the like are absorbed by the rubber elastomer 33 of the mount body 30 to thereby suppress transmission of the vibrations to the vehicle body. In this situation, for example, since, in the engine side mount 3, the stopper rubbers 41 and 42 or the like of the mount body 30 are spaced apart from the stopper metal member 40, no idling vibration is transmitted to the vehicle body therethrough.

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Figs. 7A and 7B show results of investigation on a change in spring characteristic of a vibration ~~proof~~ isolating mount before and after action of the stopper in company with acceleration and deceleration of an automobile as described above, wherein Fig. 7A is a graph showing a load vs. displacement (bending) curve showing a change in a static spring constant in the vehicle body longitudinal direction and Fig. 7B is a graph showing a change in a dynamic spring constant in the vertical direction before and after the action of the stopper.

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Therefore, with the oscillation limiting mechanism 4 in the vibration ~~proof~~ isolating mount device 3 related to the embodiment 1, a function similar to that of a torque rod can be obtained by a link action of the core body 44 embedded in the stopper rubber 42 while cost up is prevented in a simple structure similar to that of a conventional general stopper mechanism, whereby absorption performance for vibrations in the vertical directions by the mount 3 can be maintained while oscillation of the power plant P is effectively restricted even if the power plant P oscillates; thereby enabling increase in surrounding sound in acceleration to be prevented.

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In this embodiment, not only is the stopper metal member 40 in the shape of an inverted U letter provided so as to cross over the mount body portion 30 of the vibration ~~proof~~ isolating mount 3, but the stopper rubbers 41, 42 and 45 in the vehicle body longitudinal and vertical directions are also integrally with the casing 31 of the mount body portion 30 in a single piece, and thereby as well reduction in cost can be realized.

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According to a vibration ~~proof~~ isolating mount device related to the present invention, as described above, oscillation of the power plant P in rapid acceleration or the like is restricted by the oscillation limiting mechanism 4 or 4' integrally provided to the mount 3 supporting the power plant P in a single piece and even in such a state, vibrations in the vertical direction can be effectively absorbed and increase in surrounding sound in acceleration and the like in the vehicle compartment can be suppressed; therefore, the vibration ~~proof~~ isolating mount device can be employed as a mount system for a FF automobile and is extremely useful especially in a pendulum mount.

IN THE ABSTRACT:

Please replace the Abstract with the Abstract provided herewith on a separate sheet of paper.